

Suair

What is claimed is:

1. A digital camera comprising:
an image sensor in communication with said digital camera;
in accordance with picture information accumulated during operation;
a read controller for reading out said accumulated charge from said image sensor;
accumulates charge during exposure of said image sensor to light signals corresponding to a scene;
essentially same scene.
2. The digital camera of claim 1, further comprising:
a memory capable of storing said signals corresponding to said scene.
3. The digital camera of claim 1, further comprising:
judging means for judging whether or not said accumulated charge is sufficient for a new image signal to be taken;
a memory controller for controlling said memory;
said memory if said memory contains said signals.
4. The digital camera of claim 1, further comprising:
a display device capable of displaying said signals;
a display controller for controlling said display device;
roller and controlling

5 information on accumulated charge nondestructively from said photocell array; and

10

a memory capable of storing at least two image signals among said plurality of image signals corresponding to said plurality of exposure times.

judging means for making a judgement whether said memory has enough free space for a new image signal to be stored; and

20

a display device capable of displaying an image; and

25

corresponding to said plurality of image signals.

5 5. The digital camera according to claim 4, wherein
said display controller controls said display device to selectively display said
plurality of images in time-sequence in accordance with an order of respective exposure
times.

10 6. The digital camera according to claim 4, wherein
said display controller controls said display device to simultaneously display
two or more of said plurality of images.

15 7. The digital camera according to claim 4, further comprising:
a manual operating member for selecting one of said plurality of images
displayed, to determine a selected-image; and
a recording controller for storing said selected-image in a recording medium.

8. The digital camera according to claim 1, further comprising:
setting means for setting said plurality of exposure times in said read controller.

20 9. The digital camera according to claim 8, wherein
said plurality of exposure times are determined such that a first time period
elapsed before capturing a first image signal from start of exposure is longer than a second
time period elapsed before capturing a second image signal since said first image signal is
captured.

10. The digital camera according to claim 1, further comprising:

a switching operating member for switching between a multiple exposure mode and a single exposure mode, wherein

in said multiple exposure mode, said read controller sequentially captures said plurality of image signals corresponding to said plurality of exposure times with respect to a substantially same scene, and

in said single exposure mode, said read controller captures a single image signal corresponding to one exposure time with respect to a same scene.

11. A method of controlling a digital camera comprising an image sensor capable of reading-out information on accumulated charge nondestructively from a photocell array, comprising the steps of:

(a) selectively setting a multiple exposure mode and a single exposure mode;

(b) entering a command to start imaging; and

(c) selectively executing the steps of:

(c-1) in said multiple exposure mode, sequentially capturing a plurality of image signals corresponding to a plurality of exposure times with respect to a substantially same scene, and

(c-2) in said single exposure mode, capturing a single image signal corresponding to one exposure time with respect to a same scene.

12. The method according to claim 12, further comprising the step of:

(d) displaying at least one image captured.

13. A digital camera comprising:

a/

5

10

15

20

25

said first operation is a recording operation to record said captured image in a

A

5

10

15

20

25

(b) selecting one of a plurality of pixel patterns in accordance with said designated operation to determine a selected pixel pattern, and reading-out pixel signals from said image sensor in accordance with said selected pixel pattern.

21. The method according to claim 20, wherein

step (b) includes the steps of:

5 (b-1) selecting a first pixel pattern as said selected pixel pattern for a first operation, and selecting a second pixel pattern as said selected pixel pattern for a second operation, wherein said second pixel pattern is different from said first read pixel pattern, and

(b-2) selecting and reading-out pixels-to-be-read from all pixels of said image sensor in accordance with said selected pixel pattern.

22. The method according to claim 20, further comprising the step of:

(c) executing said designated operation using pixel signals which are read-out from said image sensor in accordance with said selected pixel pattern.

23. The method according to claim 22, wherein

said designated operation is a display operation to display an image captured by said image sensor; and

said step (b) includes the step of:

20 (b-3) selecting a pixel pattern having a smaller number of pixels-to-be-read than the number of pixels-to-be-read in image recording.

24. The method according to claim 23, wherein

said designated operation is an autofocus operation to obtain focus on the basis of an image captured by said image sensor; and

25 said step (b) includes the step of:

(b-4) selecting a pixel pattern adapted to calculation of a focusing position.

25. The method according to claim 24, wherein

5 said pixel pattern has a predetermined area having a higher density of pixels-to-be-read than the other areas, and
said predetermined area corresponds to a position of a subject image in focus.

26. A digital camera comprising:

10 an image sensor for converting a subject image into an electric signal, said image sensor being capable of randomly selecting pixels-to-be-read;
an operating member;
a selector for selecting one of a plurality of pixel patterns according to operation of said operating member; and
a control circuit for reading-out an image signal from said image sensor in
15 accordance with a selected pixel pattern.

27. A digital camera comprising:

an image sensor for capturing a subject image to obtain electric signals on an array of photocells; and
20 a signal reader operable to read-out said electric signals from said array of photocells at different conditions for a substantially same scene without substantially erasing said electric signals in said array of photocells, whereby different image expressions of said substantially same scene are obtained.

25 28. The digital camera according to claim 27, wherein

003554.0400
6667201959200

Q1

said different conditions include different time points at which said image signals are read-out from said array of photocells, and

said different time points are defined within a time period during which said electric signals are accumulated on said array of photocells for said substantially same scene.

29. The digital camera according to claim 27, wherein

said different conditions include different pixel-patterns at which said image signals are read-out from said array of photocells for said substantially same scene.

ADD A1

093554 024099